BY ORDER OF THE COMMANDER
AIR FORCE MATERIEL COMMAND

AFMC INSTRUCTION 21-109

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Maintenance

SUPPORT AND INDUSTRIAL OPERATIONS DEPOT FACILITIES AND EQUIPMENT

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This instruction implements AFPD 21-1, *Managing Aerospace Equipment Maintenance,* and DoD 7000.14-R, *DoD Financial Management Regulation.* It also implements requirements established in AFI 21-102, *Depot Maintenance Management* and in AFI 65-601, *USAF Budget Policies and Procedures.* It provides guidance and procedures for implementing and managing equipment and facilities projects planned for Support and Industrial Operations (S&IO) depot maintenance activities. It assigns responsibilities for reviewing, on a continuous basis, the justification, use, replacement, modernization, and disposal of industrial facilities and equipment, including related programming and budgeting. It applies to all Air Force Depot Maintenance Activity Group (DMAG) areas. It applies to equipment acquisition through the Capital Purchases Program (CPP), facility acquisition or upgrades through the Military Construction (MILCON) Program, Productivity Investment Fund (PIF), minor construction (MC) under $500,000 acquired through the CPP, and unspecified minor construction (P-341) costing between $500,000 and $1,500,000. This instruction does not apply to US Air Force Reserve units or members.

SUMMARY OF REVISIONS

This revision supersedes *AFMCI 21-109, Support and Industrial Operations Depot Facilities and Equipment, 14 Feb 1995.* It raises the capital expense threshold from $50,000 to $100,000. It reflects changes to policies concerning the definition of and funding ceilings for MC projects. It provides updated guidance on the accomplishment of economic analyses (EA) and simulation modeling for CPP funded equipment projects and MILCON program funded S&IO facility projects. It provides clarified definitions for purchase code categories for the G017 Data System. It provides updated guidance concerning the requirements for equipment project folders. It provides updated guidance concerning the transfer of capital assets and the use of fair market value to align itself with DoD 7000.14R Chapter 58 E.6.c. It adds guidance concerning the management of Computer Numerical Control (CNC)/Numerical Control (NC) Equipment. It adds guidance concerning the funding of Technology Application/Insertion (A/I) projects by the CPP. It adds guidance for accounting of DMAG owned equipment. It adds guidance for funding of depot Automatic Test System (ATS) equipment. It adds guidance for the performance of post invest-

ment analyses of CPP equipment projects. It discontinues reporting requirements for the following G017 product: RCS: MTC-MA(M)7709, Industrial Equipment Master List. And finally, it provides updated guidance concerning the S&IO Mission Element Board (MEB) prioritization process for MILCON projects.

Chapter 1

CAPITAL PURCHASES PROGRAM (CPP)

Section 1A—Introduction

1.1. Purpose. Congress authorized the establishment of the CPP within the Defense Business Operations Fund (DBOF), now Defense Working Capital Fund (DWCF), beginning in FY92. The program was devised to provide a responsive avenue for the modernization of the Department of Defense (DoD) depot maintenance industrial base. The CPP allows the DMAGs to include capital depreciation in customer sales rates as a means of financing the replacement of capital assets. This concept places depot maintenance operations on a more business like posture and allows businesslike investments for replacing unserviceable or technologically obsolete capital assets. It also provides for productivity enhancements, environmental improvements and competition.

1.2. Scope. This program covers investments made in support of DMAG activities in the following five capital investment categories:

1.2.1. Capital Equipment. This category includes new and replacement equipment purchases costing $100,000 or greater, rehabilitation of existing equipment costing $100,000 or greater and modification of existing equipment costing $100,000 or greater. These purchases must have a useful life of 2 years or more.

1.2.2. Minor Construction (MC). New facility construction or alteration of existing facility costing more than $100,000 and less than $500,000 and meeting the definition of MC as provided in chapter 3 of AFI 32-1032, *Planning and Programming Real Property Maintenance Projects Using Appropriated Funds (APF).*

1.2.3. Automated Data Processing Equipment (ADPE) and Telecommunications Equipment. This category consists of a system unit cost of $100,000 or greater and has a useful life of 2 years or greater. This category consists of computer hardware, operating system software (including utility and communications software) and telecommunications equipment as defined in Office of Manpower and Budget (OMB) Circular A-11 and DoD Budget Guidance Manual, chapter 2B2.

1.2.4. Software Development. This category consists of purchases with a unit cost of $100,000 or greater with a useful life of 2 years or more. This category includes the actual development and acquisition of the information system (both in-house (organic) and contractor support), as defined in OMB Circular A-11 and DoD Budget Guidance Manual, chapter 2B2. This category does not include software developed for a customer for use in a weapon system.

1.2.5. Management Improvement Initiatives. This category consists of initiatives costing more than $100,000 and permanently benefiting the organization.

1.3. Exclusions. The following are excluded from this program:

1.3.1. Initial lay-in of depot maintenance equipment (peculiar and common) required for support of newly introduced weapon systems.

1.3.2. MILCON projects (facility projects costing over $500,000).

1.3.3. Facility maintenance and repair (M&R) projects.

1.3.4. Equipment expense items (equipment items less than $100,000).

1.3.5. Capital investments that support non-DMAG funded activities or will not belong to DMAG activities.

1.3.6. Capital investments which are not in direct support of production (i.e., office furniture, passenger and recreational vehicles).

1.3.7. Real property installed equipment (RPIE).

1.4. Methodology. All activities within the DMAG have the authority and responsibility for budgeting and funding capital investments through the CPP. Each investment is capitalized and depreciated over the useful life of the asset. The yearly depreciation is recovered through the sales rates charged to the customer, thereby recovering the total asset cost over the useful life. This process generates revenue that is continually reinvested into the business area. See paragraph 2.5 for a more complete discussion of depreciation.

Section 1B—Policy

1.5. Budgeting. The CPP budget process is a subprocess within the Planning Programming Budgeting System (PPBS). The process begins with the issuance of budget guidance from Office of the Secretary of Defense (OSD) which is channeled down ultimately to the logistics centers. Typically, the center financial management organizations are the interface for budgeting between the product directorates and HQ AFMC. Product directorates identify and justify requirements by accomplishing EAs and process simulations. Requirements are then corporately prioritized based on mission support and the center business plan. Center budget submissions are sent to the HQ AFMC CPP management office (HQ AFMC/LGPE). CPP managers in the program management office review and approve requirements based on the submitted project justification, EA, and simulation. Budget exhibits are then produced to justify the requirements to Congress. The consolidated CPP budget is submitted as a part of the Air Force DMAG budget which is within the DWCF. Ultimately, the CPP budget is included within the President's budget and submitted to Congress. All justified requirements are submitted in the budget request.

1.6. Execution. The CPP execution process consists of four steps:

1.6.1. Formulation of a Proposed CPP Execution Plan. The responsibility for the formulation of an execution plan for the CPP belongs to the Capital Purchases Program Working Group (CPPWG). This group is chartered as a subgroup to the S&IO Mission Element Board (MEB) and is charged with the responsibility to review and prioritize command requirements and to develop a proposed execution plan for those requirements. The CPPWG is chaired by the HQ AFMC CPP program managers, and includes the membership of each center CPP manager. Participation from headquarters civil engineering and financial management may be requested as needed. The CPPWG will typically meet in the fourth quarter of the fiscal year preceding the CPP program year for which the execution plan is being developed.

1.6.2. Presentation of CPP Execution Plan to the S&IO MEB. After the CPPWG has developed a proposed execution plan, it is presented to the S&IO MEB for approval. The S&IO MEB will review and approve individual projects of major significance (cost of $1,000,000 or more). Projects costing under $1,000,000 will be combined into a lump sum investment by center and reviewed and approved

in these terms. The S&IO MEB review will typically occur late in the fourth quarter of the fiscal year preceding the CPP program year for which the execution plan is being developed.

1.6.3. Receipt of Obligation Authority (OA) from Higher Headquarters and Issuance of OA to Centers. HQ AFMC typically receives OA from higher headquarters during the first quarter of the program year (fiscal year). HQ AFMC will issue OA to the centers according to the S&IO MEB approved execution plan. OA will be issued to the centers in an equipment lump sum, minor construction lump sum, ADPE lump sum, and software lump sum according to the approved plan.

1.6.4. Obligation of CPP Dollars by the Centers. The centers are expected to execute their program according to the approved plan. From time to time reprogramming of funds may be necessary due to project cancellations and postponements. The centers are authorized, upon notification to HQ AFMC/LGPE, to execute required changes to their program during the execution year for projects costing less than $500,000. The HQ AFMC staff will be authorized to execute required changes during the program year for projects costing $500,000 to $1,000,000. The chairperson of the S&IO MEB (HQ AFMC/LG) will approve changes of $1,000,000 or more. The full S&IO MEB will be brought in on a case by case basis at the discretion of HQ AFMC/LG to approve program changes of $1,000,000 or more that affect more than one center (i.e., reprogramming of funds between centers). SAF/FM will be informed of all changes involving projects exceeding $500,000. A standing execution goal is to achieve one hundred percent obligation by the end of the program year.

1.7. Project Requirements. Projects costing $500,000 or more require an EA and simulation according to chapter 4 of this instruction prior to the center CPP budget submission to HQ AFMC. Analyses for projects costing between $100,000 and $500,000 are also required, but are approved at the center level.

Section 1C—Responsibilities

1.8. Headquarters AFMC:

1.8.1. The Modernization Branch, Director of Logistics (HQ AFMC/LGPE):

1.8.1.1. Serves as the CPP program management office.

1.8.1.2. Chairs the CPPWG.

1.8.1.3. Publishes policy for the operation of the CPP (AFMCI 21-109).

1.8.1.4. Supports the S&IO MEB in all matters pertaining to the CPP.

1.8.2. Director of Financial Management (HQ AFMC/FM):

1.8.2.1. Provides financial management policy for the CPP.

1.8.2.2. Issues CPP OA documentation to centers based on input provided by the CPP program management office.

1.9. Centers. Center commanders are responsible for ensuring that no new capabilities are acquired that will unnecessarily duplicate existing capabilities at other centers. Each center commander appoints a CPP manager. This manager is responsible for the management of the center's CPP and is a member of the CPPWG. The CPP manager will ensure widest dissemination of all CPP policy to the product directorates.

1.10. Automated Test Systems (ATS) Program Office:

1.10.1. Consolidates and prepares CPP budget submittal for common requirements for depot-only ATS including all necessary fact sheets, Economic Analyses (EAs), and simulations as required in chapter 4 of this regulation. Common is defined as those ATS projects affecting more than one depot. The budget submittal will be coordinated with all affected centers.

1.10.2. Receives for information only all other CPP ATS projects submitted by the ALCs.

1.10.3. Is invited to attend all CPP Working Group meetings.

1.10.4. If the depot-only ATS is "unique", meaning it is used only at one depot, then that depot will prepare the CPP budget submittal. The budget submittal will be coordinated, for information only, with the ATE program management office.

1.11. Capital Purchases Program Working Group (CPPWG):

1.11.1. Reviews all CPP projects for need, compliance with existing guidelines, and duplication of existing capabilities prior to budget submission and prior to program execution.

1.11.2. Develops an annual CPP budget submission.

1.11.3. Prioritizes CPP requirements and develop an annual execution strategy for the upcoming program year to be presented to the S&IO MEB for approval.

1.11.4. Monitors program execution and initiates required program changes according to paragraph 1.6.4.

1.11.5. Develops and coordinates CPP policy.

Chapter 2

DEPOT MAINTENANCE EQUIPMENT

Section 2A—Introduction

2.1. Purpose. Adequate support equipment is one of the most important requirements in the capability to perform depot maintenance. Each depot maintenance activity is responsible for reviewing and satisfying equipment needs on a continuing basis and for providing economical depot maintenance support to operational activities while minimizing ownership of industrial equipment. The proper management of depot equipment within maintenance activities requires adequate policy to ensure accurate identification of requirements, visibility of inventory and proper documentation. The Depot Maintenance Equipment Program (DMEP) provides depot maintenance activities with a method of maintaining their equipment base needed for performing their respective missions.

2.2. Scope. The DMEP consists of the following two distinct categories, the first is also a subset of the CPP:

2.2.1. PACER UPHOLD (Code 279). New purchases with an acquisition cost of $100,000 or more and a useful life of 2 years or more; equipment rehabilitation's costing $100,000 or more and extending the useful life 2 years or more; and equipment modifications costing $100,000 or more and extending the useful life 2 years or more. These investments are capitalized and depreciated over the useful life/new useful life.

2.2.1.1. Qualifying Equipment (Inclusions). Listed below are examples of equipment items that qualify under this category. See paragraph 2.5. for a more detailed explanation of qualifications for CPP funding.

2.2.1.1.1. Industrial Plant Equipment (IPE).

2.2.1.1.2. Computer Numerical Controlled (CNC) equipment.

2.2.1.1.3. ADPE hardware.

2.2.1.1.4. Automated Test Systems, including Automated Test Equipment (ATE), operating software, Test Program Sets (TPSs), Unit Under Test (UUT) TPSs, and Interface Test Adapters (ITAs).

2.2.1.1.5. Initial Outfitting Equipment (IOE).

2.2.1.1.6. Initial lay-in of weapon system support equipment (peculiar and common) required for existing weapon systems, unless provided for through appropriated accounts. (See paragraph 2.5.1.)

2.2.1.1.7. Technical equipment in support of an MC project.

2.2.1.1.8. Mechanized Material Handling Systems (MMHS).

2.2.1.1.9. Special purpose non-passenger vehicles.

2.2.1.1.10. Standard test equipment.

2.2.1.1.11. Portable office buildings defined as equipment. (see AFI 32-1032 and AFI 65-601)

2.2.1.1.12. Other Depot Plant Equipment (DPE).

2.2.1.2. Non-qualifying Equipment (Exclusions). Listed below are examples of equipment items that do not qualify under this category. See paragraph 2.2.1. for a more detailed explanation of qualifications for CPP funding.

2.2.1.2.1. Passenger and recreational vehicles.

2.2.1.2.2. RPIE.

2.2.1.2.3. Initial lay-in of weapon system support equipment (peculiar and common) for newly introduced weapon systems.

2.2.1.2.4. Portable office buildings defined as a permanent structure. (see AFI 32-1032 and AFI 65-601)

2.2.1.2.5. ATS software and equipment to prototype, test and integrate a form, fit and function replacement for obsolete D041 components, where the ATS software and equipment is not being changed.

2.2.1.2.6. Software maintenance on TPSs, where the ATS is not being changed.

2.2.2. PACER EXPENSE (Code 670). Equipment projects costing less than $100,000 which are not capitalized or depreciated. Typically this includes low cost equipment. Items purchased to repair a next higher assembly regardless of cost can be included. Also, any rehabilitation or modification project which does not qualify for PACER UPHOLD can be included.

2.3. Methodology. The DMEP provides all depot maintenance industrial funded organizations with a method for budgeting and funding equipment needs. Projects funded in the PACER UPHOLD segment will be capitalized and depreciated over the useful life of the asset. The yearly depreciation is recovered through the sales rates charged to the customer, thereby recovering the total assets cost over the useful life. Projects funded in the PACER EXPENSE segment (Non-CPP) will be recovered through the sales rate charged to the customer on a one-time basis.

Section 2B—Policy

2.4. Funding:

2.4.1. Appropriated accounts financing new system acquisitions will fund all depot capital equipment (peculiar and common) requirements in support of newly introduced weapon systems. All other depot capital equipment will be financed with DWCF capital funds. The following example is provided as a possible funding scenario that may occur in day-to-day activities:

2.4.1.1. Depot capital equipment in support of weapon systems currently in production should be funded by the procurement accounts (e.g., BP10 for aircraft, BP20 for missiles, etc.). In the case of a weapon system spanning several years of production (e.g., F-16), the determinant should be whether the depot equipment is supporting a model/block currently in production. For example, depot equipment to support a block of F-16s, which are currently in production, should be funded with appropriated funds, specifically BP10. Whereas depot equipment to support a block of F-16s which are currently out of production should not be funded with appropriated funds. Specifically, BP10 should no longer be used to fund depot capital equipment.

2.4.1.2. All depot equipment, which cannot be funded with appropriated funds, may be funded with CPP capital equipment funds upon approval of the center CPP OPR for projects costing less than $500,000, and the AFMC CPP OPR for projects costing greater than $500,000.

2.4.2. All DMEP projects will be financed through the DWCF, unless otherwise directed by HQ AFMC.

2.4.3. Equipment financed by a DMAG within the DWCF will be issued only to organic depot maintenance activities. The use of the equipment is to be only by organic depot maintenance activities utilizing DMAG employees.

2.5. Depreciation:

2.5.1. The purchase code field within the G017 data system is used to identify ownership of equipment items within the DMAG functional areas. It is also the field used in determining which equipment items are to be used in the computation of depreciation expense to be charged to DWCF. For this reason it is critical that the purchase code entered in the G017 accurately reflect true ownership of equipment items. G017 monitors (also referred to as GO17 OPRs) will ensure that equipment records accurately reflect equipment ownership. Listed below are the definitions of each purchase code category:

2.5.1.1. Purchase Code "C" (Contributed Assets): To be used for DMAG owned equipment items purchased with non-DMAG funds. Equipment contributed to the DMAG from the Air Force System Program Offices (SPOs)/System Program Directors (SPDs) must be recorded as a "C" item.

2.5.1.2. Purchase Code "N" (Non-DMAG Assets): To be used for non-DMAG owned equipment items in use within a DMAG activity (i.e. loaned equipment). Interservicing situations represent the best example of instances where equipment may be provided to the DMAG on loan. "N" coded items used by DMAG activities must have, on file, an agreement between the DMAG activity and the owning activity that defines the responsibilities of both parties concerning the use of the equipment item (i.e., maintenance agreement, replacement responsibility, return rights, disposal instructions, etc.). This agreement should be in place prior to receipt of the asset. Capital equipment items purchased with appropriated dollars by activities outside the Air Force DMAG (Navy, Army, etc.) may be recorded as an "N" item if meeting the above conditions.

2.5.1.3. Purchase Code "Blank" (DMAG Assets): To be used for DMAG owned equipment items purchased with DMAG funds (i.e., ACP, CPP, etc.).

2.5.2. Depreciation Schedule and Useful Life: New capital equipment items with an operational date after 1 October 1991 and meeting the threshold acquisition cost criteria listed in paragraphs 2.5.2.1 - 2.5.2.4. will be depreciated using the "A" file of the G017 data system using a 10 year useful life (ADPE, software, and special purpose non-passenger vehicles such as forklifts, tow vehicles, and tractors used in the direct accomplishment of DMAG work will use a 5 year useful life). Equipment items with an operational date prior to 1 October 1991 will be depreciated using the GO17 system, but will use the original estimated useful life of those equipment items. OMB Circular A-76 was used as the guideline for all items purchased prior to 1 Oct 91. The depreciation will begin the date the asset is installed, functionally acceptable from the contractor to include contractor demonstrations, and ready for use (regardless of whether it is actually used), that is when the equipment could first be used in the accomplishment of maintenance workload. For equipment items that are owned ("blank" and "C" coded) by DMAG activities, depreciation expense will be included as a funded expense to the

DWCF. Equipment items on loan to depot maintenance activities ("N" code), but owned by a non-DMAG activity, will be on file in the G017 and reported in the general ledger with the associated depreciation being funded by the owning activity.

2.5.2.1. For equipment items purchased prior to 1 October 1993, the threshold acquisition cost is greater than or equal to $15,000.

2.5.2.2. For equipment items purchased between 1 October 1993 and 30 September 1994, the threshold acquisition cost is greater than or equal to $25,000.

2.5.2.3. For equipment items purchased between 1 October 1994 and 30 September 95, the threshold acquisition cost is greater than or equal to $50,000.

2.5.2.4. For equipment items purchased after 30 September 1995, the threshold acquisition cost is greater than or equal to $100,000.

2.5.3. Transfer of Capital Assets: From time to time the DMAG will receive used capital assets. The following explains how depreciation will be recorded based on the situation. Reference DoD 7000.14-R Chapter 58 E.6.c. (1)-(3), *DoD Financial Management Regulation.*

2.5.3.1. For assets transferred to the DMAG from activities within DoD which have preexisting depreciation schedules and accumulated depreciation shall be capitalized to the DWCF at their book value plus any associated costs for transportation, installation, and other related costs necessary to put the asset in the place and the form in which it shall be used. The book value shall be entered into the G017 by the receiving activity. This value will be depreciated over the remaining useful life. Book value is defined as the original acquisition cost of a capital asset less the total recorded accumulated depreciation.

2.5.3.2. For assets transferred to the DMAG from activities within DoD which have no preexisting depreciation schedules and accumulated depreciation shall be capitalized to the DWCF at their original acquisition cost, or reasonable estimate thereof when acquisition cost cannot be reasonably determined, plus any associated costs for transportation, installation, and other related costs necessary to put the asset in the place and in the form in which it shall be used. The DMAG activity shall then record accumulated depreciation in an amount equal to the amount that would have been recorded if the asset had been depreciated based on its (the DMAG activity's) normal depreciation policy. Depreciation after the transfer shall be calculated based on the net asset amount recorded (original acquisition cost less accumulated depreciation). The net asset value shall be entered into the G017 by the receiving activity. This value will be depreciated over the remaining useful life.

2.5.3.3. If equipment is transferred from a non-DMAG activity (i.e., contractor or other non-DoD government agency) to a DMAG activity and meets the capitalization criteria it shall be capitalized to the DWCF at estimated fair market value plus any associated costs for transportation, installation, and other related costs necessary to put the asset in the place and in the form in which it shall be used. Depreciation of the donated asset shall be calculated based on the asset amount recorded. The asset amount recorded shall be entered into the G017 by the receiving activity. This value will be depreciated over the remaining useful life.

The fair market value will be determined by an engineering estimate of the current value of the piece of equipment upon receipt. The methodology (i.e. comparison to like equipment, past history, etc.) of the fair market value estimate shall be documented in the project folder and file main-

tained for the life of the asset. Local procedures shall be established that require certification of the fair market value estimate by the appropriate cost analysis organization prior to input of this data into the G017 data system. The maximum estimated remaining useful life cannot exceed the values established in paragraph 2.5.2 of this instruction. The estimated fair market value and remaining useful life shall be input into the G017 as the acquisition cost and initial useful life respectively, after certification has been accomplished. These items shall have a "C" entered in the purchase code field of the G017 to identify them as contributed assets.

2.5.4. Any changes made to data fields in the G017 that affect depreciation (i.e., purchase code changes) will be supported by accurate documentation stating the reasons for these changes. This documentation shall be stored in the item's project folder and file maintained for the life of the asset.

2.6. Equipment Authorization:

2.6.1. Equipment purchased through the DWCF for the DMAG does not require prior table of allowance (TA) approval before requisition. This deviation from the normal Air Force supply and procurement process was granted to prevent delays in the acquisition and delivery of needed depot equipment. Complete equipment requisition packages must be prepared and processed according to AFMAN 23-110, *USAF Supply Manual*. The package must include needed ordering data and the AF Form 601, **Equipment Action Request**, must be annotated to identify PACER UPHOLD/279 funding.

2.6.2. For equipment authorized in the TA, submit the AF Form 601 package with the TA number annotated to the appropriate supply activity.

2.6.3. For equipment not authorized in TA, the following must be accomplished:

2.6.3.1. The AF Form 601 will be annotated in the appropriate block to indicate the desired TA, part and section. The block labeled justification and item description must contain the end item application, and identification of workload being supported.

2.6.3.2. For non-stocklisted equipment, a DD Form 1348-6, **DoD Single Line Item Requisition System Document,** will be prepared and attached to the AF Form 601. The DD Form 1348-6 must be accompanied by a military, federal, or adopted industrial specification or standard, or preferably, a manufacture's brochure containing part number specifically identifying the required item.

2.6.3.3. All base level approvals/coordination's required by AFMAN 23-110, AFR 67-23, applicable TA preface, local operating instructions, etc., will be obtained prior to verification by the designated product directorate. The product directorate is responsible for validating all equipment requirement documentation, regardless of cost. This validation ensures that the appropriate project code (i.e., PACER Uphold, PACER Expense, etc.) is included on the AF Form 601. After validation, the request will be submitted to the appropriate supply activity for initiating an update to the applicable TA.

2.7. Project Folders. All equipment projects (FY96 and beyond) costing $100,000 or more ($50,000 or more for FY95 projects; $25,000 or more for FY94 projects; $15,000 or more for FY93 and prior projects must be supported with a project folder. Minimum contents are identified in figure 2.1, Project Folder Checklist. A project folder checklist will be placed on the inside cover of each project folder. Previous versions of the checklist are authorized for assets purchased prior to FY98. The checklist will be anno-

tated to include the date of each change to the folder contents and/or review that takes place. A mandatory review of the project folder should be accomplished at least every two years to ensure folders contain the required documentation listed on the checklist. These folders will also contain supporting data used to economically justify the project. The project folder will be retained throughout the useful life of the equipment item. Internal controls will be established to identify responsibility for project folder creation, maintenance and prescribed mandatory review . Items 1 through 7 of figure 2.1 are mandatory for each equipment item. Depending on the situation, the requirements of either A, B, or C should be maintained in addition to items 1-7.

2.8. Turn-in of Excess Equipment. DMAGs will periodically screen their equipment for underutilization. Equipment, which is no longer needed to support a valid workload or mission, will be declared excess. Also, equipment being replaced will be tracked and declared excess upon installation of the new equipment. All excess equipment will be physically turned in to supply. Excess equipment will be removed from the G017 when supply acknowledges receipt of proper turnin documents.

2.8.1. Before DMAG owned equipment is declared excess the following must be accomplished in sequential order:

2.8.1.1. Verification by the owning activity that the equipment is excess to their requirements.

2.8.1.2. The other center CPP managers have been contacted and have determined that there is not a requirement for the excess equipment at their centers.

2.8.1.3. DMAGs within other services can be contacted for determining if they have a need for the equipment. If so, the other service will fund the removal and transportation costs. The undepreciated amount of the equipment will be transferred to the other service DMAG.

2.8.2. Notification of local Plant Management activity shall occur once the equipment has been turned in so that this equipment can be removed from maintenance support, material support and preventive maintenance planning requirements.

2.9. Equipment Installation:

2.9.1. Purchased equipment that is to be installed and/or maintained by an in-house activity must become operational within 90 days after receipt. This is to minimize potential adverse affects on the equipment itself or the equipment warranties and to minimize the loss of available use of this equipment. The in-house activity should be contacted prior to equipment arrival so that appropriate maintenance support, material support and preventive maintenance planning can occur. Equipment to be installed and/or maintained by a contractor will be installed according to the applicable contract.

2.9.2. Site preparation for the installation of equipment including direct foundation work (supporting concrete slab) and secondary utilities will be classified as equipment installation work, not MC.

2.9.3. Installation costs shall be included in the total equipment project cost.

2.9.4. Equipment items, which are delivered and installed by contractors, must be received according to AFMAN 23-110.

2.10. Vital Mission Equipment. Equipment, which is mission essential and cannot be justified economically is classified as a vital mission requirement. Purchase of vital mission equipment costing $500,000 or more must be requested formally from the center CPP management office for HQ AFMC approval. An

EA and simulation according to chapter 4 must accompany the request. Centers can authorize and approve this type of project if the cost is between $100,000 and $500,000. Project folders for vital mission equipment must contain an EA and a copy of the applicable mission essential approval letter. Approval of vital mission equipment, by itself, does not guarantee funding. Requirements still must be prioritized and budgeted.

2.11. Depot-Only Automated Test Systems (ATS). Depot-only ATS includes both ATE hardware, operating system software, Test Program Sets (TPSs), UUT TPSs, and ITAs. Depot–only is defined as those systems residing only at the depots where field activities do not have like systems. Operating system software and TPSs associated with a DMAG ATS hardware investment will be planned, budgeted, and financed by the DMAG as a part of the total investment. ATS projects should be planned to encompass all aspects of the system that will be impacted including ATE hardware, operating software, TPSs, unit under test (UUT) software, and interface test adapters, where applicable and prudent. ATS resident in both depot and field locations will continue to be funded under existing guidelines and are not the responsibility of the DMAG.

2.11.1. Funding:

2.11.1.1. The cost of basic software (test executive, on-line or off-line support software) and ATS self-test will be included in the acquisition cost of the ATS.

2.11.1.2. The cost of application software, (to include TPSs) UUT and software for interface test adapters that allows the new ATS to be effective and efficiently used will be financed by the DMAG and treated as an "other" cost in the EA.

2.11.1.3. The cost of implementing changes to ATS resulting from customers' decisions or in support of new workloads will not be financed from the DMAG.

2.11.1.4. The cost of operational software and/or TPSs to update an existing ATS that is outdated and/or becoming unsupportable will be funded by the CPP capital equipment line if the cost is $100,000 or more.

2.11.1.5. ATS engineering support activities that can be directly tied to a depot-only ATS project should be financed by the CPP and included in the total project cost. In addition, this should be itemized in the EA. If the engineering support activities, whatever they may be, cannot be tied to a specific ATS CPP project it should be expensed to the DMAG, regardless of cost. ATS engineering support activity required for TPS changes, independent of ATS upgrade, will not be funded from the DMAG.

2.11.2. Configuration Control. All ATS projects developed locally at a depot shall be coordinated through the ATE program office as information only. This is to insure the program office is aware of all ATS activity in the command. Unless the ATE program office specifically grants local purchase authority, all ATS projects should be centrally procured through them. DMAG activities shall not modify or change configuration of ATS managed by the ATE program office without ATE program office coordination.

2.12. Local Purchase. DMEP items can be locally purchased, however the local purchase approval from the applicable item manager is required if the item could be centrally procured.

2.13. Industrial Plant Equipment (IPE). All IPE (3400 Federal Stock Class {FSC}) purchased with DMAG funds will be purchased through the Defense General Supply Center (DGSC), unless otherwise approved by HQ AFMC.

2.14. Rehabilitation and Modification of Depot Plant Equipment (DPE). The cost to rehabilitate equipment (complete overhaul of an item of DPE without changing its form, fit, or function) or modify equipment will be funded through the DMEP (PACER UPHOLD).

2.15. Mechanized Material Handling Systems (MMHS). The DMEP will fund all MMHS used and owned by DMAG activities. MMHS projects will be planned, programmed, and budgeted like a normal equipment project. MMHS includes the composite methods, techniques, process controllers, and equipment shelters required for handling materials in a proven mechanized manner with a dedicated function. Some examples of MMHS are wire or rail guided vehicles, pneumatic tubes, other small part conveying systems, automatic storage and retrieval systems, outdoor storage and retrieval systems, or any combination of the above.

2.16. Non-passenger Vehicles. The DMEP will fund all special purpose non-passenger vehicles such as forklifts, tow vehicles, and tractors used and owned by DMAG activities for the direct accomplishment of DMAG work (exclude FSC 2310). Non-passenger vehicles will be planned, programmed, budgeted, and economically justified like a normal equipment project.

2.17. Management of Computer Numerical Control (CNC)/Numerical Control (NC) Equipment. This equipment is defined as any automated industrial plant equipment which incorporates CNC or NC machine control technology for the manufacture, repair, and inspection of end items. The users of such equipment at each center are responsible for managing the acquisition, operation, and maintenance of CNC/NC equipment subject to any applicable provisions of this instruction and any local regulations.

2.17.1. OO-ALC has the responsibility to maintain all current central processors and postprocessors being shared with other centers. This is an ongoing responsibility for as long as there are machines that may utilize the postprocessors centrally located at OO-ALC. Centers must individually negotiate with OO-ALC for support on any additional future requirements above what is currently centrally located at OO-ALC.

2.17.2. AFMC has adopted Binary Cutter Location (BCL) as a standard manufacturing language for CNC/NC machines. BCL specifies a particular binary format for NC data. All CNC/NC equipment purchases shall use BCL as the standard language unless a compelling reason can be justified and documented in the equipment project folder.

2.17.3. CNC/NC equipment will be planned, programmed, budgeted, and economically justified like a normal equipment project.

2.18. Technology Application/Insertion (A/I) Infrastructure. Technology A/I Infrastructure projects are defined as those projects that apply existing proven technology that currently does not exist within a depot to solve problems and improve performance of production processes. Projects, which require basic research or development of unproven technologies, do not qualify for CPP funding. If, however, a given technology currently exists and a requirement calls for insertion of this proven technology into DWCF operations, the efforts necessary for introduction into depot operations can be funded within the DWCF

operating program. Projects must result in a future benefit to the DMAG activity by being low risk and providing a Return on Investment (ROI). No vital mission requests will be accepted.

2.18.1. Technology A/I Infrastructure projects will be planned, programmed, budgeted, and economically justified like a normal equipment project. All applicable sections of this instruction apply. In addition, all technology A/I projects must be coordinated through the Center Technology Council (CTC) prior to budget submission.

2.19. Environment, Safety and Health:

2.19.1. Environmental impacts will be assessed in the acquisition and management of DMEP equipment according to AFPD 32-70, *Environmental Quality.*

2.19.2. Consideration for safety and health will be a part of all equipment projects according to MIL STD 882C (System Safety), AFI 91-202, *USAF Mishap Prevention Program,* chapter 9, and AFI 91-301, *Air Force Occupational and Environmental Safety, Fire Prevention and Health (AFOSH) Program*. System safety analyses will be included in design requirements and applied as required by AFI 91-301. All facility and equipment contracts will comply with the applicable safety and health standards. Variances from such standards or any provision thereof are processed according to AFI 91-301. The workers, supervisor and a safety engineer will accomplish a job safety analysis before the equipment becomes operational.

2.19.3. Equipment items to be purchased to alleviate environmental, safety, or health deficiencies in DMAG activities and that qualify for CPP funding will be planned, programmed, budgeted, and economically justified like a normal equipment project.

2.20. Technical Data. If deemed necessary, the Performance Work Statement (PWS) for equipment should include a DD Form 1423, **Contract Data Requirements List**, with data item description specifying technical data (illustrated parts breakdown, repair/overhaul manuals, calibration procedures, etc.) as appropriate according to MIL STDs 961 and 962.

2.21. Accounting for Equipment. All DMAG equipment items meeting the acquisition cost threshold values in paragraphs 2.5.2.1 - 2.5.2.4. whether acquired new, contributed, or on-loan will be accounted for in the G017 data system. Each piece of accountable equipment will be labeled, as a minimum, with its National Stock Number (NSN) and G017 assigned serial number. Center CPP managers and or GO17 OPRs shall ensure that internal control procedures are established to ensure that data in the GO17 is kept up to date and accurate within system limitations. Internal controls should include, but are not limited to, the approval process for input of new equipment to the G017, error control procedures, and the approval process for equipment deletions and adjustments.

2.22. The G017 Data System. The G017 is an automated data processing system designed to support the management of the DMEP. This system provides visibility of the DMEP inventory ("A" File) and tracks equipment depreciation. Reference AFMCM 78-165, *Depot Maintenance Equipment Program (DMEP)-G017 Users Manual*, for specific details regarding G017 system operations and parameters.

2.22.1. G017 training will be available to system users semiannually. The method and location of training will be determined locally.

2.22.2. File maintenance will be performed on a continuing basis according to the G017 users manual. The local office responsible for the management of the G017 data system shall establish internal controls assigning file maintenance responsibilities, to include providing the Defense Finance and Accounting Service (DFAS) with any documentation they require when adjustments are made to the G017 data.

Section 2C—Responsibilities

2.23. Headquarters AFMC:

2.23.1. HQ AFMC/LGP. Provides policy and guidance for the management of the DMEP and related depot maintenance equipment issues.

2.23.2. HQ AFMC/FM. Provides financial management policy for the DMEP and related depot maintenance equipment issues.

2.24. Centers:

2.24.1. Plan, program, and carry out the DMEP equipment program according to this instruction and local policy.

2.24.2. File maintain the G017 equipment data system according to the G017 users manual and this instruction.

2.24.3. Ensures the project personnel within the applicable product directorates properly identify, justify, document and utilize DMEP equipment.

Figure 2.1. Project Folder Checklist.

1. DATE OF REVIEW:
2. ORGANIZATION:
3. NSN:
4. SERIAL NUMBER:
5. NOMENCLATURE:
6. CHRONOLOGY OF SIGNIFICANT EVENTS
7. OTHER AS APPLICABLE: AF FORM 601, ISSUE/TRANSFER/TURN-IN
   AF FORM 2005, ISSUE/TRANSFER/TURN-IN
   ANY OTHER INFORMATION THAT FURTHER DOCUMENTS THE PROJECT

A. PURCHASE CODE "BLANK" (DMAG ASSETS)
1. COPY OF SIGNED PURCHASE CONTRACT
2. PURCHASE ENGINEERING SPECIFICATIONS (LOCAL PURCHASE ONLY)
3. ECONOMIC ANALYSIS WITH SUPPORTING DATA
4. VITA MISSION APPROVAL DOCUMENTATION, IF APPLICABLE
5. SIMULATION MODEL (HARD COPY) FOR ITEMS $5000,000 OR GREATER
6. POST IMPLEMENTATION BENEFITS ANALYSIS FOR ITEMS $500,000 OR GREATER
7. OTHER AS APPLICABLE (SUPPLY GROUP 34 ONLY):
   a. DD FORM 1419 - NONAVAILABILITY CERTIFICATE
   b. DD FORM 1423 - CONTRACT DATA REQUIREMENTS LIST (CDRL)
8. OTHER AS APPLICABLE:
   DD FORM 1348, DD FORM 250, DD FORM 1149, DD FORM 1150

B. PURCHASE CODE "C" (CONTRIBUTED ASSETS)
1. COPY OF SIGNED PURCHASE CONTRACT
   or - COPY OF D043 FOR ACQUISITION COST FOR EQUIPMENT TRANSFERRED FROM A WORKING CAPITAL FUND ACTIVITY (AFTER 1 OCT 91 ONLY). DATA FROM D043 SHOULD MATCH MANUFACTURERS DATE
   or - FAIR MARKET VALUE FOR EQUIPMENT DONATED FROM OUTSIDE DoD (AFTER 1 OCT 91 ONLY)
2. OTHER AS APPLICABLE:
   DD FORM 1348, DD FORM 250, DD FORM 1149, DD FORM 1150

C. PURCHASE CODE "N" (NON-DMAG ASSETS)
1. MAINTENANCE AGREEMENT PLACED PRIOR TO RECEIPT OF ASSET CONTAINING THE FOLLOWING INFORMATION:
   a. REPLACEMENT RESPONSIBILITY
   b. RETURN RIGHTS/RETURN DATE SPECIFIED
   c. DISPOSAL INSTRUCTIONS
   d. MAINTENANCE AGREEMENT
   e. OTHER

Chapter 3

DEPOT FACILITY PROGRAM

Section 3A—Introduction

3.1. Purpose. The goal of DoD and this command is to minimize ownership of industrial facilities while ensuring essential defense production for both peacetime and wartime requirements. The commander at each center is responsible for reviewing the industrial complex. This chapter covers the policies and responsibilities governing the replacement, modernization and new mission requirements for industrial facilities. This is accomplished through the utilization of the MILCON, the Minor Construction Program, the M&R Program, Emergency Funds (P-341), Operation and Maintenance (O&M), and the PIF. Reference AFI 32-1021 and AFI 32-1032 for complete definitions of the MILCON, MC, M&R, P-341, O&M and PIF programs.

3.2. Scope. The depot facility program covers acquisition, construction, and use of property for S&IO activities. It includes provisions for maintenance, repair, replacement and modernization of industrial facilities. The purpose of the program is to maintain an organic logistics plant that can rapidly and effectively respond to the needs of current and programmed workload, as well as a mobilization effort if required.

Section 3B—Policy

3.3. Review of Industrial Facilities. S&IO facilities shall be periodically reviewed at least biannually by the user according to AFMCI 21-105, *Depot Maintenance Work Measurement*, to ensure they are operating at maximum economic efficiency to minimize cost, increase productivity and utilization, and reduce the need for additional facilities. Industrial facilities shall be modernized only after the completion of a review of the mission and workload in support of current and programmed requirements. Under normal conditions, justification for additional facilities is based on workloading to a single shift, 40 hours per week operation. High cost facilities and equipment shall be based on a two-shift (80-hour) week if adequate surge capability exists.

3.4. Disposal of Excess Facilities. Organizations shall screen their facilities for underutilization. If no longer needed to support a valid workload, they shall be declared excess as prescribed by AFI 32-9004, *Disposal of Real Property.*

3.5. Environment, Safety and Health:

3.5.1. Environmental impacts will be assessed in the acquisition and management of depot facilities according to AFPD 32-70 and AFI 32-7004 (formerly AFR 19-3, *Environmental Impact Analysis Process (EIAP) Overseas*.

3.5.2. Consideration for safety and health shall be a part of all facility projects according to MIL STD 882C (System Safety), AFI 91-202 (chapter 9) and AFI 91-301. System safety analysis shall be included in design requirements as required by AFI 91-301. All facility contracts shall comply with applicable safety and health standards. Variations from such standards to any provision thereof shall be processed according to AFI 91-301.

3.6. Programming, Budgeting, and Finance:

3.6.1. Industrial facilities shall be programmed, budgeted, and controlled as MILCON, MC, PIF, P-341, O&M or M&R projects. All facility projects are subject to the rules set forth by AFI 32-1021 and AFI 32-1032

3.6.2. S&IO construction projects costing less than $500,000 are considered to be MC projects and are funded through the CPP. S&IO construction projects costing $500,000 or more are funded through P-341, PIF, or MILCON programs as appropriate. Maintenance M&R projects are funded through the DMAG portion of the DWCF. Specific programming, budgeting, and finance policy may be found in AFMCI 21-111, and AFR 170-10, *Air Force Industrial Fund*.

3.7. MILCON Projects. For all S&IO MILCON projects, a project brochure shall be prepared by the applicable center Offices of Primary Responsibility (OPR), reviewed and coordinated by the center S&IO MILCON organizational focal point (typically located in FM), and sent to HQ AFMC/LGPE in the year the MILCON program is prepared. HQ AFMC/LGPE will begin the MEB process as described in paragraph 3.7.2. of this chapter.

3.7.1. Preparation of Project Brochures. The following information shall be assembled and bound into brochures. Leave 1 1/4" margin for binding. Send an original plus one copy to HQ AFMC/ LGPE. Once completed, a copy of the MILCON brochure shall be placed in the project folder (see paragraph 3.9.). Each brochure shall include:

3.7.1.1. A One-page Summary. A project summary sheet similar to the example in figure 3.1. This project summary sheet shall consist of brief statements concerning the operational benefits, economic factors and impact of the project. Each statement shall be referenced and explained further in the project brochure.

3.7.1.2. DD Form 1391 and 1391c, **Military Construction Project Data**. DD Form 1391 data shall be prepared according to AFI 32-1032.

3.7.1.3. Narrative Description. A narrative description intended to provide additional insight to the project and provide an opportunity for the user to specifically explain the need for the project will be provided. The following information is required in the narrative description to help in the defense of the project at air staff, OSD/OMB, JDMAG, and Congressional reviews:

3.7.1.3.1. *Background.* This section provides general historical information on the project. It should include, as a minimum, the following information:

3.7.1.3.1.1. History of Need. This section is a brief statement of events and conditions leading up to the need for the project.

3.7.1.3.1.2. Project History. Is this an original submittal? If not, explain.

3.7.1.3.2. *Description of Workload/Weapon Systems/End Items Supported.* This section applies to workload projected during the "payback" period of the facility. The following questions address specific information that should be provided:

3.7.1.3.2.1. What weapon systems/end items are supported? Give quantity, type, value, and aircraft operational data.

3.7.1.3.2.2. What commodities, products, processes, and technologies are involved?

3.7.1.3.2.3. What is the volume of components, items, commodities, personnel, aircraft, etc., processed?

3.7.1.3.2.4. What is the current and projected work force in the proposed facility (by grade/skill, AFSC, shift, etc.)?

3.7.1.3.2.5. How is the workload changing (increasing, decreasing, no change)? Include workload projection in thousands of direct labor hours for the current year, budget year, and 5 outyears for each weapon system/end item supported.

3.7.1.3.2.6. What is the total direct labor hour capacity, measured using DoD-H 4151.15, *Depot Maintenance Production Shop Capacity Measurement Handbook*, for each weapon system/end item supported?

3.7.1.3.3. *Current Situation.* This section describes the existing circumstances that initiate a need for this project. As a minimum, the following information shall be included:

3.7.1.3.3.1. What changes drive the need for this project (mission, workload, increased manpower, facility consolidation, equipment size, obsolete systems, and environmental, health, safety, or fire protection laws)?

3.7.1.3.3.2. Identify completed depot maintenance interservice new start studies and any ongoing studies relating to the project.

3.7.1.3.3.3. Describe any new emerging new repair technologies that will be incorporated into the new facility.

3.7.1.3.3.4. When was the present facility built, and what was it originally designed for?

3.7.1.3.3.5. Where are present facilities located in regard to workload?

3.7.1.3.3.6. What other alternatives to this project were considered and if rejected, why?

3.7.1.3.3.7. Will this project impact or cause any other facility requirements?

3.7.1.3.3.8. What is the disposition of the facilities previously used for this workload upon completion of the new project?

3.7.1.3.3.9. Is the purpose of the project to modernize, increase current capacity, add capability, or combination of these factors?

3.7.1.3.4. *Project Impact.* This section provides information on the impact of the project on current and future activities. As a minimum, the following questions shall be answered:

3.7.1.3.4.1. How shall this project improve the current situation (streamline the process, increase efficiency, enhance the mission, etc.)?

3.7.1.3.4.2. What is the impact if the project is not provided? Be specific; refrain from general comments.

3.7.1.3.5. *Initial Outfitting Equipment (IOE).* This section pertains to equipment that is not RPIE (see AFI 65-601 for definition of RPIE). IOE is the required equipment that allows the facility to be fully operational for the purpose it was intended. All IOE must be justified in the facility EA. Simulations of proposed production lines, to include analysis, shall be required for MILCON and PIF projects with IOE in excess of $500,000. A 15 percent change in the IOE cost shall require a new submittal of the facility EA. Any required IOE, including IOE

design costs, shall be budgeted for by the centers in the appropriate year's CPP budget submittal. The following information shall be included:

3.7.1.3.5.1. Identify and prioritize all IOE by line item. Include the cost and quantity of each item.

3.7.1.3.5.2. Identify the year and appropriation in which the equipment has been programmed or procured.

3.7.1.3.6. *Joint Depot Maintenance Interservice Support.* Under the DoD core concept, depot maintenance workload will be driven to the most efficient DoD depot that is capable of performing this workload. All MILCON projects undergo a joint service review prior to final approval. In order to support and defend MILCON projects in a joint service review, answers to the following questions should be included in the project brochure:

3.7.1.3.6.1. Does the project duplicate other facilities within the Air Force or another DoD service? If so, explain why this duplication is required. Describe what efforts were made to determine if duplicate facilities exist.

3.7.1.3.6.2. Is the project justified by workload at the depot? Include current workload and any forecasted workload.

3.7.1.3.6.3. Could alternate depots perform the mission as well with no MILCON or additional equipment?

3.7.1.3.6.4. Is the project required to support DoD core or posture planning objectives?

3.7.1.3.7. *Other Pertinent Information.* Provide any additional information to aid HQ AFMC staff to understand and support the project through Air Staff, OSD/OMB, JDMAG, and Congressional reviews. As a minimum, this will include:

3.7.1.3.7.1. The action office, project manager, and phone number (DSN).

3.7.1.3.7.2. A single line drawing on a standard bond paper showing the layout of the facility, and identify various functional areas.

3.7.1.3.7.3. A site plan showing the general location of the facility on the base.

3.7.1.3.7.4. A minimum of four 8" X 10.5” color photographs. Affix a white pressure sensitive label (approximately .5" X 3.25") on the lower right-hand corner of each photograph, giving base name, project title, and cost. Affix a label (centered) on the back of the photo, giving a short narrative explanation of the view.

3.7.1.4. MILCON Checklist. A MILCON checklist is to be completed by an objective party other than the project engineer or project manager as shown in figure 3.2. Include name, office symbol, and phone number (DSN) of person completing the checklist.

3.7.1.5. Economic Analysis (EA). Include a current copy of the EA performed according to the requirements set forth in chapter 4 of this instruction.

3.7.1.6. Simulation Output. When required, include output from any simulations used to justify the project according to chapter 4 of this instruction.

3.7.2. MEB Process.

3.7.2.1. Each mission element within AFMC will have its own MEB. The purpose of the S&IO MEB is to assure the readiness and sustainability of all systems for which AFMC has primary support responsibility. This is accomplished by engaging in activities required to establish, maintain, assess, and continuously improve the S&IO mission area. This includes the review and prioritization of all S&IO MILCON projects.

3.7.2.2. After HQ AFMC/LGPE receives MILCON brochures, the LG staff then prioritizes the S&IO project list using a formalized ranking criteria based on current command priorities. The main prioritization criteria will always be the center commanders (each center commander is a member of the S&IO MEB) final prioritized center MILCON submittal in which S&IO projects are ranked together with all other MEB requirements at that base. This is considered to be the center commander's main and most important input to the MEB process.

3.7.2.3. All projects (all MEBs) are normally briefed at the direction of HQ AFMC/CE to the HQ AFMC Facilities Panel. The HQ AFMC Facilities Panel has Headquarters working level membership from all MEBs. Following these briefings, the LG staff, acting on behalf of the S&IO MEB, reserves the right to make changes to the formalized prioritized S&IO list based on any new information gained. A final prioritized S&IO list is then approved by the S&IO MEB Chairperson (HQ AFMC/LG) and presented to the S&IO MEB. After this approval, the prioritized S&IO list is then presented to the HQ AFMC Facilities Panel, who will then develop a command priority list based on all the various MEB priority lists. This command priority list is then sent through the chain of command for final approval.

Note. Any S&IO MILCON project that does not have a supporting MILCON brochure will not be defended to the HQ AFMC Facilities Panel.

3.8. MC Projects:

3.8.1. Those S&IO construction projects costing less than $500,000 are considered MC projects and subject to the guidelines set forth in AFI 32-1032 and AFI 65-601. All MC projects shall have Base Civil Engineering, or designated approving official approval on either the DD Form 1391, AF Form 332, or AF Form 327 prior to funds approval.

3.8.2. Joint MC. There may be some instances when an MC project is designated in support of both DMAG and O&M activities. In these instances, the following funding rules shall apply for projects totaling $100,000 or greater:

3.8.2.1. The determination of funding portions for these types of projects shall be accomplished using an appropriate breakout factor, either square feet or number of personnel. The method of breakout shall be annotated on DD Form 1391, AF Form 332, or AF Form 327 with the corresponding funding responsibility of each activity (DMAG portion and O&M portion).

3.8.2.2. The DMAG portion shall be funded up front with MC funds from the CPP. The O&M portion will be funded up front with O&M MC funds.

3.8.2.3. MC funds shall be used for joint projects with a total cost of $100,000 or greater, even if the proportion cost of either O&M or DMAG is less than $100,000.

3.9. Project Folders. All facility projects costing over $100,000 shall be supported with a project folder containing all forms required for project approval. The organization of the project folders shall be standardized for all major facilities. The project engineer shall maintain the project folder in a centralized

location throughout the economic life of the facility. To aid in benefits reporting, these folders shall contain information to show the facility cost, why the facility is needed, the economic advantages, and where it is located.

3.9.1. Project Folder Contents. The following shall be included, as a minimum, in the project folders for each category of project:

3.9.1.1. MILCON Projects:

3.9.1.1.1. *MILCON Brochure/EA.* Include the most recent version of the MILCON brochure and EA (if required) as described in paragraph 3.7.1. of this instruction.

3.9.1.1.2. *DD Forms 1391 (initial through command submittals).*

3.9.1.1.3. *Official Inquiries.* All questions asked by local officials about the project along with the center responses shall be included. For example, telecoms, letters, or messages from HQ AFMC review and approval offices shall be included in the form of a memo or copy of the correspondence. The center official's response shall be similarly documented.

3.9.1.1.4. *Review Records.* Copies of all project audit review reports shall be included. The project officer shall note cursory reviews of the project by another agency or office.

3.9.1.1.5. *Chronology of Significant Events.* A log of important events affecting the project shall be placed in the folder to help place the documentation within the folder in the proper context.

3.9.1.1.6. *Investment History.* Documentation concerning specifications, estimates, etc., developed to determine project cost, and documentation concerning procurement actions, such as actual purchase request, contract, and delivery records shall be included. The investment history will help determine actual project cost, the date the project was received, the date it was beneficially used, and the project location.

3.9.1.1.7. *Correspondence.* This section shall include significant correspondence that does not fit in one of the above categories (i.e., environmental impact statements {EIS}). The information outlined above will provide reviewers not familiar with the project enough documentation to convince them the project is a reasonable investment.

3.9.1.1.8. *Actual Benefits.* Benefits tracking will be accomplished according to chapter 4 of this instruction.

3.9.1.2. MC/M&R Projects:

3.9.1.2.1. *AF Form 332,* **Base Civil Engineering Work Request** (if required), or *AF Form 327,* **Civil Engineering Work Request** (if required).

3.9.1.2.2. *DD Forms 1391 (initial through command submittals, if required).*

3.9.1.2.3. *AF Form 1241,* **Contract Data** *(if applicable).*

3.9.1.2.4. *Economic Analysis,* if applicable (see AFI 65-501)

3.9.1.2.5. *Related correspondence.*

3.9.1.2.6. *Line drawings of the project.*

3.9.1.2.7. *Project site plan.*

3.9.1.2.8. *Other documentation required for approval.*

3.9.2. Project Folder Disposition. Documentation for projects shall be retained until the end of the economic life of the facility.

Section 3C—Responsibilities

3.10. HQ AFMC:

3.10.1. General Responsibilities. Several directorates support depot facility requirements. The HQ AFMC staff is required to:

3.10.1.1. Provide the policies and procedures to ensure support for the AFMC industrial mission.

3.10.1.2. Provide specific guidance to the centers in preparing facility programming documents.

3.10.1.3. Coordinate on center submitted programming documents.

3.10.2. Specific Responsibilities:

3.10.2.1. The Directorate of Logistics (HQ AFMC/LG):

3.10.2.1.1. Acts as the OPR for the S&IO MILCON program at HQ AFMC.

3.10.2.1.2. Coordinates the preparation and submission of center project brochures according to paragraph 3.2. of this instruction.

3.10.2.1.3. Maintains, coordinates, and issues changes to this instruction.

3.10.2.1.4. Approves and defends the S&IO related candidate projects.

3.10.2.1.5. Coordinates and presents depot industrial facility projects (S&IO) to AFMC organizations and staff boards, Air Force staff, other approval offices and appropriate personnel.

3.10.2.1.6. Verifies the long range depot maintenance workload and resource planning information prepared by each center for development and support of the individual project submittals.

3.10.2.1.7. Ensures that all funding guidance is coordinated with HQ AFMC/FM before issuance.

3.10.2.2. The Directorate of Requirements (HQ AFMC/DR):

3.10.2.2.1. Approves and defends respective facility project candidates.

3.10.2.2.2. Verifies the long range-related workload and resource planning information prepared by each center.

3.10.2.3. The Directorate of Financial Management (HQ AFMC/FM):

3.10.2.3.1. Coordinates on all implementing instructions developed by functional staff offices that relate to EA and program evaluation.

3.10.2.3.2. Reviews all MILCON and PIF EAs.

3.10.2.3.3. Certifies EAs, when appropriate.

3.10.2.3.4. Coordinates on all decisions not to accomplish an EA.

3.10.2.3.5. Provides inflation indices for EA.

3.10.2.3.6. Helps prepare ALC direct, indirect, and overhead labor rates for the S&IO activities at the centers.

3.10.2.3.7. Provides guidance on EAs and program evaluation policy and procedures.

3.10.2.3.8. Establishes command policy on the proper use (propriety) of funds.

3.10.2.3.9. Reviews projects for propriety of funding as required.

3.10.2.3.10. Provides funding guidance to other AFMC and center activities.

3.10.2.3.11. Resolves differences in interpretation of established funding criteria.

3.10.2.4. The Directorate of Command Civil Engineer (HQ AFMC/CE):

3.10.2.4.1. Obtains final approval of all M&R, MC and MILCON projects within HQ AFMC.

3.10.2.4.2. Chairs the HQ AFMC Facilities Panel.

3.10.2.5. The Directorate of Plans and Programs (HQ AFMC/XP):

3.10.2.5.1. Reviews and validates all manpower costs and benefits. These costs and benefits will be provided by the center-using agency in conjunction with the project brochure.

3.10.2.5.2. Approves and defends respective facility project candidates.

3.10.2.5.3. Verifies the long range-related workload and resource planning information prepared by each center.

3.11. Centers:

3.11.1. General Responsibilities. Center facility requirements shall be coordinated through appropriate directorates, to include product directorates, XP, SC, PK, CE, and FM. The local management engineering team (MET) shall validate additional manpower costs. Additional manpower requirements (permanent or temporary) generated as the result of facility projects shall be documented by the using agency and forwarded to HQ AFMC/XP through normal channels. A copy of this documentation shall be attached to the facility project brochure. This documentation shall be the basis for programming and budgeting of manpower requirements and funding of manpower resources.

3.11.2. Specific Responsibilities:

3.11.2.1. The Directorate of Plans and Programs (XP):

3.11.2.1.1. Ensures that AFMC directives and instructions are fully implemented.

3.11.2.1.2. Represents the center commander at major facility meetings.

3.11.2.1.3. Serves as chairperson of all depot industrial facility policy and procedure meetings at the center.

3.11.2.1.4. Assists any official agent in reviewing project files.

3.11.2.1.5. Provides instructions for correcting deficiencies reported from audits.

3.11.2.1.6. Assists the project manager as necessary.

3.11.2.1.7. Contacts the local MET for guidance when there are contractual considerations involved.

3.11.2.1.8. Ensures that all depot industrial facility funding requirements are properly evaluated for propriety of funding by the center financial manager before sending to HQ AFMC.

3.11.2.2. The Product Directorates and Communications and Computer Systems Directorate (SC):

3.11.2.2.1. Support and defend their respective facility projects.

3.11.2.2.2. Prepare and coordinate their respective inputs to appropriate funding programs.

3.11.2.2.3. Ensure long range workload projections and resource planning information are included in their respective project submissions.

3.11.2.2.4. Ensure one division coordinates all facility-related projects (MILCON, MC, M&R).

3.11.2.2.5. Prepare facility project brochures (according to paragraph 3.7.1. of this instruction).

3.11.2.2.6. Develop requirements and justification to aid CE in preparation of DD Form 1391, AF Form 332, or AF Form 327 documentation.

3.11.2.2.7. Provide center FM with information needed for the preparation of the official EA documentation (according to AFI 65-501).

3.11.2.2.8. Assist other directorates in the support and defense of workload and cost data for EAs.

3.11.2.3. The Base Civil Engineer:

3.11.2.3.1. Ensures that all RPIE and IOE are properly identified and costed out per AFI 32-1021, AFI 32-1032, and AFI 65-601.

3.11.2.3.2. Prepares the DD Form 1391, AF Form 332, and AF Form 327 documentation where applicable with assistance from the using agency according to AFI 32-1032. Cost data utilized on the DD Form 1391, AF Form 332, or AF Form 327 must be consistent with costs used in any applicable EAs.

3.11.2.3.3. Submits the applicable program documents to HQ AFMC/CE in conjunction with submittal of the project brochure by the using agency.

3.11.2.3.4. Ensures all participants in the MILCON follow the set format and criteria for requests.

3.11.2.3.5. Provides the product and SC directorates with supporting project documentation as required. Monthly updates for management reports, audits, benefit reports, and historical events documentation shall be given to these center directorates.

3.11.2.4. The Center FM/TI. Generally, the FM organization is responsible for the items listed, however, the center TI may be assigned some of the duties according to Center Commander discretion.

3.11.2.4.1. Coordinates on all guidance given on EA preparation and costing.

3.11.2.4.2. Coordinates project brochures with appropriate directorates and sends to HQ AFMC/LGPE.

3.11.2.4.3. Ensures personnel preparing EAs are properly trained. Notifies the center product directorate's organization when EA training is being accomplished.

3.11.2.4.4. Reviews/coordinates EAs prepared by product directorates and SC according to chapter 4 of this instruction.

3.11.2.4.5. Appoints an independent EA reviewer from the cost analysis function.

3.11.2.4.6. Prepares EA official documentation according to AFI 65-501 and AFMAN 65-506.

3.11.2.4.7. Issues instructions for correcting deficiencies in EAs.

3.11.2.4.8. Coordinates on all decisions not to accomplish an EA.

3.11.2.4.9. Provides inflation indices, relevant financial data and guidance for use in preparation of EAs.

3.11.2.4.10. Reviews all depot industrial facility projects before programming/budgeting submissions.

3.11.2.4.11. Reviews and coordinates on each PR/military interdepartmental purchase request (MIPR) to ensure the propriety of funding.

3.11.2.4.12. Identifies in the center budget submissions the necessary actions to ensure funds are appropriately budgeted for these projects.

3.11.2.4.13. Applies funding guidelines described in AFI 65-601, volumes 1-5.

3.11.2.5. The Directorate of Contracting (PK):

3.11.2.5.1. Provides contracting support in all direct and indirect efforts required for facility projects.

3.11.2.5.2. Assists in contract planning and interpretation of applicable contracting guidance prior to acquisition.

3.11.2.5.3. Provides copies of all contracting documents, including changes, to product directorates and FM as specified by special instructions in the PR.

Figure 3.1. Example of Project Summary

PROJECT SUMMARY

TITLE: Alter aircraft Utility Outlets

OBJECTIVE: To provide for the replacement of utility systems on the West Ramp to service 20 aircraft work stations. Utility distribution shall include electricity, compressed air, water, sewer, and telephone conduits.

OPERATIONAL BENEFITS:

- A deteriorated utility system shall be replaced
- Safety and traffic conditions around aircraft shall be improved
- Emissions from gas powered aircraft support equipment shall be reduced
- Consumption of fossil fuels shall be reduced

ECONOMIC FACTORS:

- Annual fuel savings: 250,000 gallons valued at over $300,000
- Savings/Investment ratio: 1.09
- Amortization period: 7.6 years
- Total one-time savings: $412,107 for turn in of 32 fuel powered support equipment units.

IMPACT IF NOT PROVIDED:

- The quantity of support equipment needed for repairing aircraft shall not be reduced
- Fossil fuel usage shall remain high

Figure 3.2. Checklist for MILCON.

	YES	NO
1. Requirement Validity: Should the Air Force spend funds on this project?	[ ]	[ ]
2. Scope Validity: Is the project scope justified according to AFI 32-1024, Standard Facility Requirements, and all other established criteria?	[ ]	[ ]
3. User Coordination: Has the user concurred with scope/criteria/location, etc., for the project? If not, explain.	[ ]	[ ]
4. Availability of Existing Facilities: Is there another facility available that could solve the problem or accommodate the requirement? If yes, explain.	[ ]	[ ]
5. Concurrent Construction Projects: Are there concurrent projects within other directorates that need to be integrated with this MILCON project? If yes, explain.	[ ]	[ ]
6. Related Equipment Funding: Does funding/delivery or related equipment match the MILCON funding profile?	[ ]	[ ]
Are the proper funding appropriations being used?	[ ]	[ ]
7. Security Considerations: Have appropriate security requirements been identify, including TEMPEST? If not, explain.	[ ]	[ ]
8. Siting Considerations: Does the siting conflict with other projects? If yes, explain.	[ ]	[ ]
If the project is for a technical facility (radar, communication, etc.), has the critical technical siting been accomplished? If not, explain.	[ ]	[ ]
9. Environmental Considerations: Are there any significant or insurmountable problems? If yes, explain.	[ ]	[ ]
Can an EIS be completed in time, if required? If not, explain.	[ ]	[ ]

Figure 3.3. MILCON Checklist Continued.

	YES	NO
10. Agreement Problems: Have all necessary county, state, municipality or host-tenant agreements been completed? If not, explain.	[ ]	[ ]
11. Correct Fiscal Year: Is the project in the correct fiscal year? What is the impact if the project if the project is deferred?	[ ]	[ ]
12. Project Design: Can the 35 percent design stage be achieved by 1 August of required fisca year? If not, explain.	[ ]	[ ]
13. Project Ability to Sell: Have similar projects been supported by OSD & Congress?	[ ]	[ ]
Has project previously been denied? If yes, explain. Is there better justification?	[ ]	[ ]
14. Project Award: Can the design be completed and the project awarded during the FY programmed? If not, explain.	[ ]	[ ]

Name:
Office Symbol:
DSN:
Date Completed:

Chapter 4

ECONOMICS, SIMULATION, AND BENEFITS ANALYSIS

Section 4A—Introduction

4.1. Purpose. The decision for making capital equipment and facility investments is driven by economic and mission factors. EA, simulation modeling, and benefits analysis are methods used to assist the decision maker in determining and evaluating proposed solutions to a defined problem. This chapter provides policy and guidance for the justification of depot maintenance capital equipment and depot maintenance MILCON projects. The policy specifically addresses the requirements for accomplishment of EA, simulation modeling, and benefits analysis. The objective is to provide the structure for better decision making in the capital outlay of DoD resources directed towards the modernization of AFMC depots.

4.2. Scope. This policy applies to all capital equipment projects funded through the CPP and all MILCON projects supported through the S&IO MEB, whether directly, or indirectly tied to the depot maintenance mission.

Section 4B—Policy

4.3. Economic Analysis (EA). EA is a systematic approach to the problem of choosing how to use scarce resources. It reveals the present value of the monetary costs and benefits associated with all alternatives under consideration, and provides as accurate and complete a picture as possible of non-monetary costs and benefits. This systematic approach reduces the incidence of serious omissions or the introduction of personal bias.

4.3.1. Equipment Methodology. General Air Force guidance for the preparation of an EA is contained in AFI 65-501. Specific guidance for proposed CPP funded equipment projects follows:

4.3.1.1. *Thresholds.* For projects costing $100,000 or more, but less than $500,000 (total project cost) an EA will be accomplished, with the specific format left to the discretion of the center. Certification authority for these EAs resides with the center level financial analysis or cost analysis organizations. For all projects costing $500,000 (total project cost) or more, an EA will be accomplished according to the standards and formats of AFMAN 65-506. Certification authority for these EAs resides at HQ AFMC. IOE in support of a MILCON project is treated differently and will be addressed in paragraph 4.3.2.7. of this instruction. HQ AFMC/LG may request that EAs be performed at any time.

4.3.1.2. *Timing of Submittals.* EAs for projects costing $500,000 (total project cost) or more are required at the time of preparation of the CPP Budget Estimate Submittal (BES) by HQ AFMC/LGP. Normally this takes place in the third quarter of the even number years and is preceded by a call letter. Projects without EAs will be left out of the budget submittal. No funds will be allocated prior to submission and approval, so it is advantageous to submit EAs as early as possible. Projects requesting funds out of cycle must include an EA to be considered.

4.3.1.3. *Alternatives.* Each EA must include a complete list of alternatives considered to meet the objective. All feasible alternatives must be costed and analyzed on a project basis where all life cycle costs and benefits must be included in the analysis. Status quo is always to be considered as an alternative.

4.3.1.4. *Format.* The formats outlined in AFMAN 65-506 are the suggested formats to utilize when performing EAs. Format A ordinarily should be submitted for each feasible, costed alternative. An Amortization Period must be calculated and included in Format A-1. It is obtained by dividing the arithmetic sum of the Net Investment minus the one time unadjusted benefits (savings) by the non-discounted total annual benefits (savings). Format A-1 should express the differential cost between the recommended alternative and the status quo or upgraded baseline alternative.

4.3.1.5. *Comparison Criteria.* EAs performed will compare all feasible alternatives in constant dollars and discounted using discount factors published by SAF/FMCE on the Economic Analysis Home Page. Location of the Economic Analysis Home Page on the World Wide Web is "www.saffm.hq.af.mil/SAFFM/FMC/econoanal.html."

4.3.1.6. *Criteria for Estimates.* Beginning with the FY94 program year, simulation modeling is a mandatory justification requirement. The modeling process will generate data to support estimates and claims made in the EA. Validated modeling output is considered a good source for making estimates for critical cost and savings factors to be used in the EA. For example process cycle times, labor requirements, downtime, work-in-process, etc. At the very least, the modeling data must support and confirm estimates derived, or obtained from any other source. Reference paragraph 4.4. of this instruction for more detailed guidance pertaining to simulation modeling. If modeling is not utilized (i.e. a waiver was granted) the source and rationale behind all estimates must be documented.

4.3.1.7. *Personnel Savings.* An important part of savings for EAs is personnel savings. Savings can be realized through consolidation of operations, an increase in productivity or improved efficiency. Increases in productivity and improved efficiency may decrease the hours presently required to perform a workload. However, a decrease in hours does not always mean savings in personnel. So that savings are an accurate representation of what will actually occur after the project is complete, all personnel savings shall be expressed in terms of personnel equivalents (PE) or overtime hours and then converted to dollars savings. All full-time civilian PEs will be computed by using 1744 hours per man-year. Personnel costs include all direct and indirect costs related to both civilian and military personnel. Generally, the local cost analysis division in the Financial Management Directorates of each center should provide labor rates for use in the preparation of EAs. RCC labor rates for the workload in question is the most desirable, however, a center composite labor rate may be utilized. Personnel costs may also be estimated according to the criteria in AFMAN 65-506. All PE savings must be recognizable in terms of an audit trail. As a result, in order to claim "hard" PE savings, the affected positions must be identified and for the particular resource control center (RCC) in question must be identified in the EA as being either moved to a different RCC, terminated from government employment, used to reduce documented overtime, or used on substantiated new workload for that RCC. A record shall be placed in the project file to verify the claims of actual reduced or reassigned personnel.

4.3.1.8. *Economic Indicators.* The savings/investment ratio and amortization period calculated on Format A-1 will be used to compare alternatives. A savings/investment ratio greater than 1.0 and an amortization period less than 10 years is considered to be economical. Normally, the alternative showing the best saving/investment ratio and amortization period is the alternative of choice, however, non-quantifiable factors can affect the selection process. Format D shall serve to summarize the ranking of alternatives and include the non-quantifiable benefits.

4.3.1.9. *Backup Information.* AFI 65-501 contains guidelines for requirements of backup information. All sources, estimates, and assumptions must be referenced with enough information provided to trace all calculations to their most basic inputs.

4.3.1.10. *Vital Mission.* Equipment which is mission essential and cannot be justified economically is classified as vital mission. Purchase of vital mission equipment costing $500,000 or more must always be requested formally from the center FM level for HQ AFMC/LGP approval. An EA must accompany the request. Centers may make mission essential purchases during the execution year for projects costing between $100,000 and $500,000 (total project cost). An EA will be accomplished for these projects and reviewed locally.

4.3.1.11. *Certification Requirements.* EAs performed for projects costing $500,000 or more must be certified by the base level comptroller, base level financial analysis or cost analysis office, and by the base level functional OPR per AFI 65-501 prior to submittal for HQ AFMC approval. Submittals shall be made to HQ AFMC/LGP for staffing and disposition. The HQ AFMC Financial Analysis Office must certify the EA in conjunction with validation by HQ AFMC/LGP. No funds shall be obligated prior to HQ AFMC/FM issuance of a Certificate of Satisfactory Economic Analysis. However, HQ AFMC/LGP is the final approval authority, and as command level OPR for the CPP, may disapprove funding despite any prior concurrence of an EA.

4.3.2. MILCON Methodology**.** General Air Force guidance for the preparation of EAs for MILCON projects, as with equipment, is contained in AFI 65-501. The guidance is standard regardless of type of program with a few exceptions. Specific guidance for proposed S&IO supported MILCONs is as follows:

4.3.2.1. *Thresholds*. An EA shall be performed for all S&IO MILCON projects costing $2,000,000 or more. Projects based predominately on economic merit shall have an EA regardless of cost. AFI 65-501 contains additional conditions for accomplishment. Finally, when IOE in support of MILCON projects costs $500,000 or more, an EA is considered mandatory, regardless of the total MILCON cost. HQ AFMC/LG may request an EA be performed at any time.

4.3.2.2. *Timing of Submittals.* EAs (a component of the MILCON brochure covered in chapter 3) are required at the time of the MILCON Budget Estimate Submittal (BES) by HQ AFMC/CE. Normally, this takes place 2 years ahead of the program year. EAs, to be included with the brochures, are due by July of the year the BES is prepared. This date could change based on cycle changes. Normally, HQ AFMC/LG (acting under the S&IO MEB charter) will provide a call letter, in addition to any correspondence generated by HQ AFMC/CE regarding preparation of the program.

4.3.2.3. *Alternatives.* Alternatives are evaluated in a similar manner as stated in paragraph 4.3.1.3.

4.3.2.4. *Format.* Suggested formats for a accomplishment are the same as stated in paragraph 4.3.1.4.

4.3.2.5. *Comparison Criteria*. Comparison of alternatives shall be accomplished as stated in paragraph 4.3.1.5.

4.3.2.6. *Productivity Investment Fund (PIF).* The PIF program is an OSD sponsored productivity enhancement program funded out of a single DoD pool of funds. Air Force equipment and facility projects compete for funding with the other services. AFI 38-301 establishes the policies and pro-

cedures for establishing and submitting PIF projects and should be consulted for specific guidance. Each PIF proposal must be accompanied by an EA. Unlike normal EAs, the PIF EA must only consist of a comparison of costs associated with the status quo and with the PIF proposal. EA procedures are still governed by AFI 65-501 and differ only in that in addition to the normal requirements, a calculation of internal rate of return (IRR) is required. To be considered for funding a minimum amortization period of 4 years and a minimum IRR of 50 percent is required. Projects meeting the minimum criteria are then prioritized by OSD based on IRR, return on investment, and manpower spaces saved per dollar invested. All PIF MILCON proposals must be submitted with biennial base MILCON requirements. According to AFI 38-301, industrially (DMAG) funded activities may not utilize PIF for equipment projects. The impact is that IOE requirements must be budgeted in the CPP program for MILCON PIFs even though the MILCON portion will be funded by PIF. Non-industrially (non-DMAG) funded S&IO activities need not worry about this exclusion.

4.3.2.7. *Initial Outfitting Equipment (IOE).* IOE is the minimum new equipment, other than RPIE, required to provide basic capability in a new facility for the purpose it was intended. All IOE must be justified in the facility EA in order to determine the total cost of the project to the government. Identification of IOE shall be by line item in both the MILCON brochure and DD Form 1391c. When calculating the present value of IOE, the replacement of the IOE every 10 years (until the facility's useful life has been achieved) after the IOE begins operation must be taken into account. Essentially, the total present value of IOE shall be the present value of the initial purchase added to the present values of each replacement.

4.3.2.8. *Criteria for Estimates.* For those projects requiring simulations, the data shall be used to support estimates and claims made in the EA in a manner as explained in paragraph 4.3.1.6. For all projects, sources of estimates and all calculations must be clearly identified.

4.3.2.9. *Personnel Savings.* Personnel savings are to be calculated according to the guidance contained in paragraph 4.3.1.7. of this chapter.

4.3.2.10. *Economic Indicators.* Generally, alternatives shall be evaluated according to the economic criteria in paragraph 4.3.1.8. of this chapter. All feasible alternatives must be fully costed and analyzed. Infeasible alternatives must be accompanied by a detailed explanation.

4.3.2.11. *Backup Information.* Backup information to be included with EAs includes the source of all data and cost factors, all calculations leading up to the first cost figure, and all assumptions.

4.3.2.12. *Certification Requirements.* EAs must be certified by the base level comptroller, base financial analysis/cost analysis office, and by the base level functional OPR before submittal for headquarters review. All S&IO MILCON EAs should be submitted as a part of the MILCON brochure to HQ AFMC/LGP. HQ AFMC/LGP will request a formal review by the HQ Financial Analysis Office who will issue a Certificate of Satisfactory Economic Analysis upon certification. Concurrently, and in conjunction with the Financial Analysis Office, HQ AFMC/LGP will conduct an in-house review in order to validate the content of the EA. S&IO MILCONs must receive both a Certificate of Satisfactory Economic Analysis and concurrence by HQ AFMC/LGP.

4.3.3. Updates/Revisions. All CPP funded equipment projects and S&IO sponsored MILCON/PIF projects requiring an EA according to AFI 65-501 and the criteria of this instruction must be reviewed at least each year up to the point of contract award. Revised EAs shall be resubmitted and recertified according to the normal guidelines of this instruction. Any CPP equipment projects, or S&IO spon-

sored MILCON projects initially not meeting the cost thresholds, which becomes greater than the cost threshold after a price increase whether estimated or actual, requires that a suitable EA be accomplished in which to analyze the project. No contracts should be awarded for projects in a revision status. The following conditions warrant a revision:

4.3.3.1. An investment cost increase of 15 percent or more.

4.3.3.2. An increase or decrease in workload of 10 percent or more.

4.3.3.3. A decrease of projected savings.

4.3.4. Waivers. Waivers to requirements for conducting an EA are specifically covered in AFI 65-501. The base financial analysis office, comptroller and base cost analysis office must concur with the base level functional office request for waiver. HQ AFMC/LGPE, will evaluate the waiver request and if they concur, will forward the request to the headquarters financial analysis office for concurrence. The ultimate approving authority of a request for a waiver from conducting an EA is the OSD Comptroller.

4.4. Simulation Modeling. Computer simulation is the process of designing a mathematical-logical model of a real system or process and experimenting with this model on a computer. Simulation encompasses a model building process as well as the design and implementation of an appropriate experiment involving that model.

4.4.1. Purpose. Simulation models permit inferences to be drawn about processes without building, disturbing, or destroying them. New investment proposals are one of the most important management decisions. Mistakes in capital investments not only affect immediate cash flows, but also the operation of the business and future cash flows for years to come. Simulation is but another tool to aide in the decision-making process, and when used in conjunction with an EA, adds credence to the selection of an alternative involving a capital investment.

4.4.2. Equipment. All depot maintenance sponsored equipment projects proposed for CPP funding, or requiring partial CPP funding (REPTECH) with a dollar value greater than or equal to $500,000 shall be modeled as a prerequisite to funding. The threshold applies to all projects. The simulation modeling cost threshold of $500,000 aligns with the EA cost threshold and therefore, both are to be accomplished concurrently in order to take advantage of the simulation data in deriving costs and benefits, assumptions, and estimates for the EA. Both the EA and simulation shall be submitted together in hard copy form for proper evaluation.

4.4.3. Facilities (MILCON). All S&IO MILCON projects that require CPP funded IOE with a total cost of $500,000 or more shall be modeled as a prerequisite to funding. The model should be detailed enough to support all IOE requirements and cover the scope of the proposed MILCON project. As with equipment, thresholds apply to all projects. The simulation model and EA should be accomplished concurrently with the simulation acting as a data source or supporting tool for the EA. Both shall be submitted in hard copy form as part of the MILCON project brochure.

4.4.4. Requirements:

4.4.4.1. Timing of Submittals:

4.4.4.1.1. *Equipment.* It is the explicit goal that simulation modeling take place concurrently with the accomplishment of an EA for both CPP equipment and S&IO MILCONs. As a result, the timing of submittals for simulations shall line up exactly as with EAs. The intent of the

policy for CPP equipment projects is to use EAs and simulation models as justification in the preparation of the CPP BES. Simulations (as with EAs) are required at the time of preparation of the CPP BES by HQ AFMC/LGPE. Without timely submission, requirements cannot be justified and will be excluded from the budget submission. Submittals are to be made to HQ AFMC/LGPE. No funds will be allocated prior to submission and approval.

4.4.4.1.2. *Facilities (MILCON).* The intent of the policy for MILCON is similar to that for equipment projects. Simulation models, EAs, and MILCON brochures are used as justification in the preparation of the MILCON BES by HQ AFMC/CE, which normally takes place in even numbered years. As with equipment projects, without timely submission, requirements cannot be justified and will not be supported by HQ AFMC/LGPE (acting on behalf of the S&IO MEB and HQ AFMC Facilities Panel). A call letter will normally be generated, however, it is not mandatory. Submittals are to be made to HQ AFMC/LGPE.

4.4.4.2. Output. The modeling process will generate data to support claims made in the EA. All simulations shall be accomplished prior to expenditure of design funds. A summary of the model formulation, all assumptions, all data inputs and sources, critical factors that were chosen for experimentation, all output reports, and a summary of the results will be included as an attachment to the MILCON brochure.

4.4.4.3. Summary Report. The summary report, as a minimum will include throughput, inventory levels (including work-in-process) and operating costs for both the "As Is" and "To Be" processes. A narrative description of the simulation shall be included to summarize simulated findings and results.

4.4.4.4. Software/Language. The modeling software/language used to develop these models will be the choice of those performing the simulation. It is each center product directorates responsibility to train project engineers in the art of simulation/modeling. This includes any specific vendor training required to utilize a particular software program.

4.4.4.5. Verification & Validation. A signature from a neutral (not having a direct stake in the project), process knowledgeable expert of the center's choice will serve to certify that the models have been verified and validated by the center.

4.4.4.6. Headquarters Role. HQ AFMC/LGPE will review the simulation output for consistency with the EA, to verify the scope covered, and to check that the model has been verified and validated by the center.

4.4.5. Waivers. In situations where, in the center's judgment, the expected benefits of modeling do not merit the investment required, HQ AFMC/LGP may waive the modeling requirement with sufficient documentation from the center. Sufficient documentation is considered to be a letter signed at the center product directorate level outlining the specific costs in time, dollars, and manpower, and your rationale for requesting a waiver. Waivers will not be granted due to lack of training. Training requirements are to be met according to paragraph 4.4.4.4.. Waivers will also not be granted simply because the project is a one for one replacement. A simulation/modeling waiver does not relieve you of your responsibility to perform the appropriate EA and/or vital mission request. Conversely, an EA waiver does not relieve you of your responsibility to perform the appropriate simulation/model. All requests must include the coordination of the appropriate base level FM organization for the program in question. Waivers are considered the exception, rather then the rule and will not be granted freely.

4.5. Benefits Analysis. Economic benefits are usually the primary justification for equipment investments. Reasonable accuracy at forecasting benefits and a good program to provide feedback of actual benefits helps ensure proper allocation of budgetary resources.

4.5.1. Requirements. Benefits analysis will take place at the local center level with all record keeping delegated to the lowest level possible. The benefits analysis, along with a copy of the EA, will be stored in the equipment project folder. IOE, vital mission, MC, and MILCONs are excluded from benefits analysis requirements. Annually, each center shall prepare post-investment analyses for ten percent of the number of capital investment projects (minimum of 5 projects) that were completed during the previous fiscal year and had been justified wholly or partially on the basis of economic considerations. CPP funded equipment projects costing $500,000 or more should be the first projects selected for analysis. A post investment analysis summary will be completed within 12 to 18 months after operational status is reached. The format and technique for each post-investment analysis shall be similar to the cost comparison or economic analysis used for the project justification. A post investment analysis can no longer be submitted on an AFMC Form 265 (rescinded), however an analysis summary containing the same data fields is acceptable.

4.5.2. Calculation of Benefits. Calculation of benefits for installed equipment will be based on actual operating results. The EA used originally to justify the project should only be used as a guide in determining the actual benefits. However, benefit claims should not be limited to sources originally identified in the EA. The original EA is not adequate documentation in itself to support actual claimed savings. Particular care must be taken to ensure all costs assignable to a project are considered in the benefit analysis. This includes all organic and contractual costs. All documentation must be retained in the project folder for the economic life of the equipment.

4.5.3. Waivers. When it is not possible to document actual benefits or costs, a Memorandum of Record (MR) will be completed and signed no lower than branch level of the organization reportedly receiving the benefit of the new project. The memo should include a statement indicating it is not possible to provide official documentation of benefits, that the rationale and data in the original EA is still reasonable and the new condition with the project is essentially as projected. Also, the MR should include detailing efforts underway to ensure such information will be available for future projects. The MR shall be kept permanently in the project folder.

Section 4C—Responsibilities

4.6. HQ AFMC:

4.6.1. HQ AFMC/LGPE:

4.6.1.1. Acts as the final approval authority for all of the following:

4.6.1.1.1. EAs of CPP equipment projects costing $500,000 or more.

4.6.1.1.2. EAs for S&IO MILCON projects.

4.6.1.1.3. Simulation models submitted in support of CPP equipment projects costing $500,000 or more.

4.6.1.1.4. Simulation modeling waiver requests.

4.6.1.1.5. Vital mission equipment requests for CPP equipment projects costing $500,000 or more.

4.6.1.2. Ensures the proper coordination of EAs and simulations by the headquarters staff.

4.6.1.3. Concurs on all requests for waivers to EAs for CPP equipment projects and S&IO MILCON projects.

4.6.2. HQ AFMC/LGPW:

4.6.2.1. Reviews and validates workload projections documented in EAs and simulation models.

4.6.2.2. Reviews projects to ensure applicable workloads and their new start approval has been obtained.

4.6.3. HQ AFMC/FM:

4.6.3.1. Reviews and approves/disapproves EAs according to AFI 65-501.

4.6.3.2. Appoints an independent EA reviewer from the cost analysis function.

4.6.3.3. Issues Certificates of Satisfactory EA for all applicable CPP and MILCON projects.

4.6.3.4. Coordinates on all guidance given on EAs preparation and costing.

4.6.3.5. Provides inflation indices and relevant financial data for EAs.

4.6.3.6. Coordinates on all EA waiver requests.

4.7. Centers:

4.7.1. Product Directorates:

4.7.1.1. Initiate EAs for equipment projects costing $500,000 or more.

4.7.1.2. Initiate EAs for S&IO MILCONs.

4.7.1.3. Perform simulations for CPP equipment and S&IO MILCON projects, where applicable.

4.7.1.4. Prepare benefits analysis and documents supporting data for equipment projects identified by the center CPP manager.

4.7.1.5. Submit all EAs to the base level financial analysis and cost analysis offices for review and approval.

4.7.1.6. Initiate all waivers to EAs and simulations.

4.7.1.7. Provide simulation/modeling training for project engineers.

4.7.1.8. Provide support where necessary to ATS program office to allow them to develop common command-wide requirements. This includes all data required to develop fact sheets, EAs, and simulations required by this instruction.

4.7.2. Center FM/TI. Generally, the FM organization is responsible for the items listed, however, the center TI may be assigned some of the duties according to Center Commander discretion.

4.7.2.1. Receives, reviews, approves/disapproves, and certifies EAs according to AFI 65-501 and this instruction.

4.7.2.2. Issues instructions for correcting deficiencies in EAs.

4.7.2.3. At the request of functional organizations, assist in the development of economic analyses.

4.7.2.4. Approves, disapproves or forwards functional organization's request for waiver to performing an EA.

4.7.2.5. Works with HQ AFMC/FM in resolving any discrepancies in the content of economic analyses.

4.7.2.6. Selects the projects for benefits analysis according to paragraph 4.5.1 and tasks the appropriate product directorate to accomplish.

4.7.2.7. Provides center labor rates used for economic analyses.

4.7.3. ATS Program Office. Develop all necessary fact sheets, EAs, and simulations to support common depot-only ATS requirements.

THOMAS W. BATTERMAN, Deputy Director
Directorate of Logistics

Attachment 1

GLOSSARY OF ABBREVIATIONS AND ACRONYMS

Abbreviations and Acronyms

ACP—Asset Capitalization Program

ADPE—Automated Data Processing Equipment

ALC—Air Logistics Center

APF—Appropriated Funds

ATE—Automated Test Equipment

ATS—Automated Test Systems

BES—Budget Estimate Submittal

CNC—Computer Numerical Control

CPP—Capital Purchases Program

CPPWG—Capital Purchases Program Working Group

DBOF—Defense Business Operations Fund

DFAS—Defense Finance and Accounting Service

DGSC—Defense General Supply Center

DMAG—Depot Maintenance Activity Group

DMEP—Depot Maintenance Equipment Program

DoD—Department of Defense

DPE—Depot Plant Equipment

DWCF—Defense Working Capital Fund

EA—Economic Analysis

EIS—Environmental Impact Statement

FSC—Federal Stock Class

IOE—Initial Outfitting Equipment

IPE—Industrial Plant Equipment

IRR—Internal Rate of Return

JDMAG—Joint Depot Maintenance Analysis Group

MC—Minor Construction

MEB—Mission Element Board

MET—Management Engineering Team

MILCON—Military Construction

MIPR—Military Interdepartmental Purchase Request

MMHS—Mechanized Material Handling Systems

MR—Memorandum of Record

M&R—Maintenance and Repair

NSN—National Stock Number

OA—Obligation Authority

OMB—Office of Management and Budget

OPR—Office Of Primary Responsibility

OSD—Office Of The Secretary Of Defense

O&M—Operation and Maintenance

PE—Personnel Equivalents

PIF—Productivity Investment Fund

PPBS—Planning Programming Budgeting System

PR—Purchase Request

PWS—Performance Work Statement

RCC—Resource Control Center

RCS—Reports Control Symbol

RPIE—Real Property Installed Equipment

S&IO—Support and Industrial Operations

TA—Table of Allowance

UUT—Unit Under Test